

CLAIMS

1. A deodorization apparatus characterized by comprising:
an intake port for taking in a gas with malodor;
a deodorant supply device for supplying deodorant into the gas taken in through the intake port;
an exhaust port for discharging the gas taken in through the intake port;
an airflow forming device for forming an airflow from the intake port to the exhaust port; and
a filter which removes a malodorous substance from the gas with malodor together with the deodorant prior to exhaust through the exhaust port.

2. A deodorization apparatus according to Claim 1, characterized in that the deodorization apparatus comprises a booth main body for restraining diffusion of malodor, and that an intake port is open to an interior of the booth main body.

3. A deodorization apparatus according to Claim 1 or 2, characterized by comprising a moving device for moving a collecting surface of the filter for collecting the deodorant and the malodorous substance.

4. A deodorization apparatus according to Claim 3, characterized in that, in moving the collecting surface, the moving device moves a collecting surface with a high collection efficiency toward the airflow.

5. A deodorization apparatus according to Claim 3 or 4, characterized in that:

the moving device comprises a moving amount changing means for changing a moving amount of the collecting surface and a collection amount calculating means for calculating an amount of deodorant and malodorous substance collected by the collecting surface; and

the moving amount changing means changes the moving amount of the collecting surface in accordance with a collection amount calculated by the collection amount calculating means.

6. A deodorization apparatus according to Claim 5, characterized in that the collection amount calculating means detects an operating condition of a coating apparatus installed in the booth main body, and calculates the collection amount based on the operating condition.

7. A deodorization apparatus according to any one of Claims 3 through 6, characterized in that:

the filter has a cylindrical filter base member for taking

in a gas with malodor and deodorant from an outer periphery; and
the moving device rotates the filter base member in a circumferential direction thereof to move the collecting surface.

8. A deodorization apparatus according to any one of Claims 1 through 7, characterized in that:

the deodorant supply device comprises a supply amount adjusting means for adjusting a supply amount of deodorant, and a supply amount calculating means for calculating a deodorant supply amount corresponding to an amount of malodor to be deodorized; and

the supply amount adjusting means adjusts the supply amount of deodorant in correspondence with the supply amount calculated by the supply amount calculating means.

9. A deodorization apparatus according to Claim 8, characterized in that the supply amount calculating means detects the operating condition of the coating apparatus, and, based on the operating condition, calculates the amount of deodorant to be supplied.

10. A deodorization apparatus according to any one of Claims 1 through 9, characterized in that:

the airflow forming device comprises a blower for forming an airflow, an air amount adjusting means for adjusting an air quantity

of the blower, and a malodor amount calculating means for calculating an amount of malodor to be deodorized; and

the air quantity adjusting means adjusts the air quantity of the blower according to the malodor amount calculated by the malodor amount calculating means.

11. A deodorization apparatus according to Claim 10, characterized in that the malodor amount calculating means detects the operating condition of the coating apparatus, and calculates the malodor amount based on the operating condition.

12. A deodorization apparatus according to any one of Claims 1 through 11, characterized in that the filter is a chemical filter.

13. A deodorization apparatus according to any one of Claims 1 through 12, characterized in that the deodorization apparatus comprises:

a first casing unit containing the filter and the deodorant supply device and having the intake port at a position allowing introduction of the gas with malodor to a periphery of the deodorant supply device; and

a second casing unit comprising the airflow forming device and the exhaust port and connected to the first casing unit through a filter provided in the first casing unit.

14. A deodorization apparatus according to Claim 13, characterized in that a number of stages of the first casing unit are connected to the second casing unit.

15. A deodorization apparatus according to Claim 13 or 14, characterized by comprising a circulation duct which causes at least a part of a gas discharged from the second casing unit to flow back to the intake port of the first casing unit.

16. A deodorization method characterized by the steps of:
taking in a gas with malodor;
supplying deodorant into the gas with malodor taken in to cause a malodorous substance generating malodor to adhere to the deodorant;
and

taking the gas with deodorant into a filter to collect the malodorous substance by the filter together with the deodorant.

17. A deodorization method according to Claim 16, characterized in that, in the step of collecting the deodorant and the malodorous substance by the filter, the deodorant and the malodorous substance are collected while, of the collecting surface of the filter, a collecting surface with high collection efficiency is successively moved toward an airflow.

18. A deodorization method according to Claim 17, characterized in that, in moving a collecting surface, the collection amount of deodorant and malodorous substance collected by the filter is calculated, changing a moving amount of the collecting surface according to the collection amount calculated.

19. A deodorization method according to Claim 18, characterized in that, when taking in malodor in a coating booth as a deodorization object, an operating condition of a coating device installed in the coating booth is detected, calculating the collection amount of deodorant and malodorous substance based on the operating condition detected.

20. A deodorization method according to Claim 19, characterized in that, in calculating the collection amount based on the operating condition of the coating device, the collection amount is calculated from an amount of compressed air consumed during application of coating material.

21. A deodorization method according to any one of Claims 16 to 20, characterized in that, in the step of supplying the deodorant, a supply amount of deodorant corresponding to an amount of malodor to be deodorized is calculated, adjusting the supply amount of

deodorant according to the supply amount calculated.

22. A deodorization method according to Claim 21, characterized in that, when taking in malodor in a coating booth as the object of deodorization, the operating condition of the coating device installed in the coating booth is detected, calculating an amount of deodorant to be supplied based on the operating condition detected.

23. A deodorization method according to Claim 22, characterized in that, in calculating a deodorant supply amount based on the operating condition of the coating device, the amount of deodorant to be supplied is calculated from the amount of compressed air consumed during application of coating material.

24. A deodorization method according to any one of Claims 16 to 23, characterized in that, in the step of taking the gas with deodorant into the filter, an amount of deodorant and malodorous substance contained in the gas is calculated, and an amount of gas to be taken into the filter is adjusted according to the amount of deodorant and malodorous substance calculated.

25. A deodorization method according to Claim 24, characterized in that, when taking in malodor in the coating booth as the object of deodorization, the operating condition of the coating device

installed in the coating booth is detected, calculating the amount of deodorant and malodorous substance contained in the gas based on the operating condition detected.

26. A deodorization method according to Claim 25, characterized in that, in calculating the amount of deodorant and malodorous substance based on the operating condition of the coating device, the amount of deodorant and malodorous substance is calculated from the amount of compressed air consumed during application of coating material.